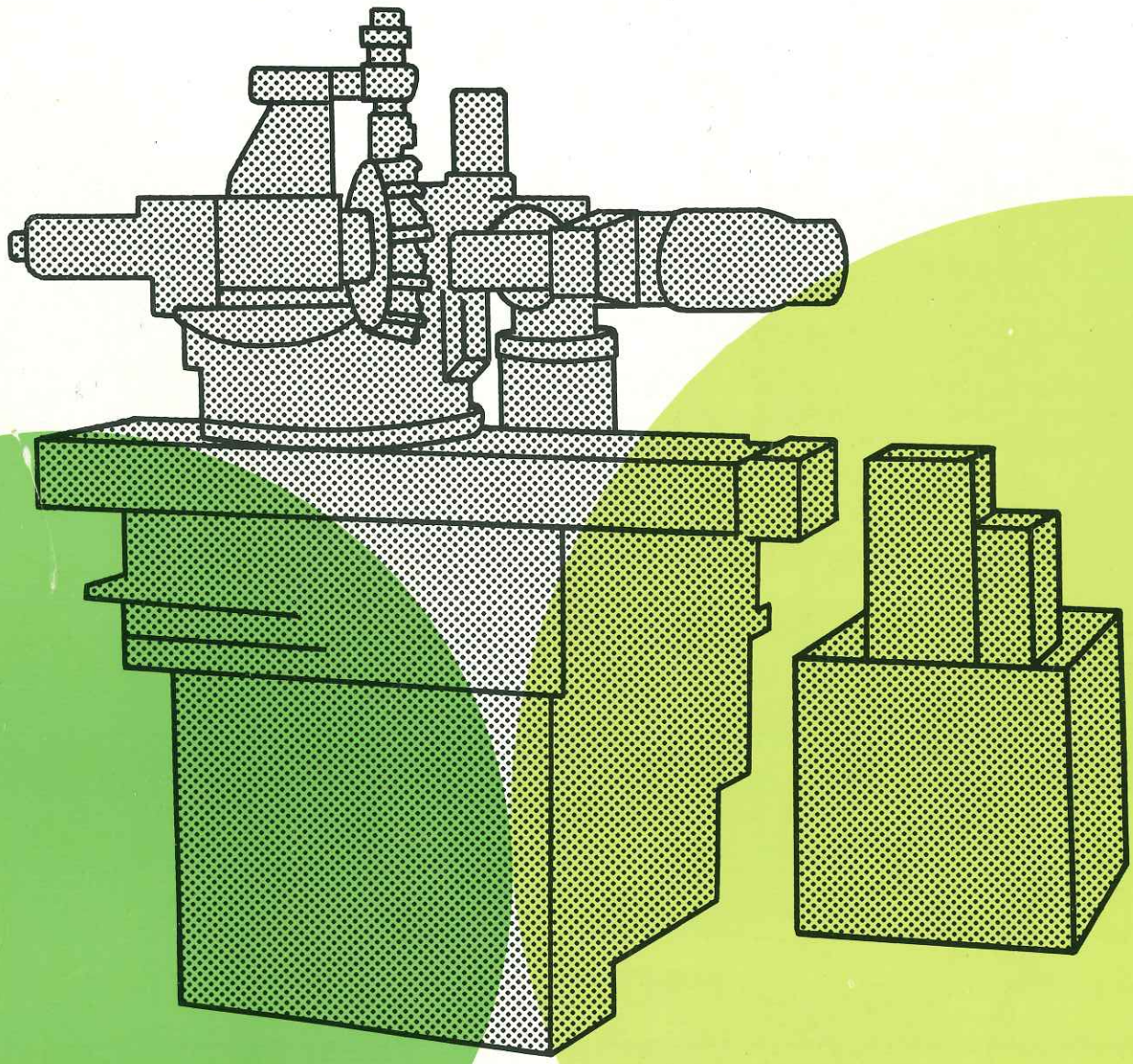
451-239

The New WALTER Profile Form-Grinding Machine for Milling Cutters and Face Mills

automatic, electronic, programme-controlled



copytronic 501

"the profile form grinding machine of the 1980's"

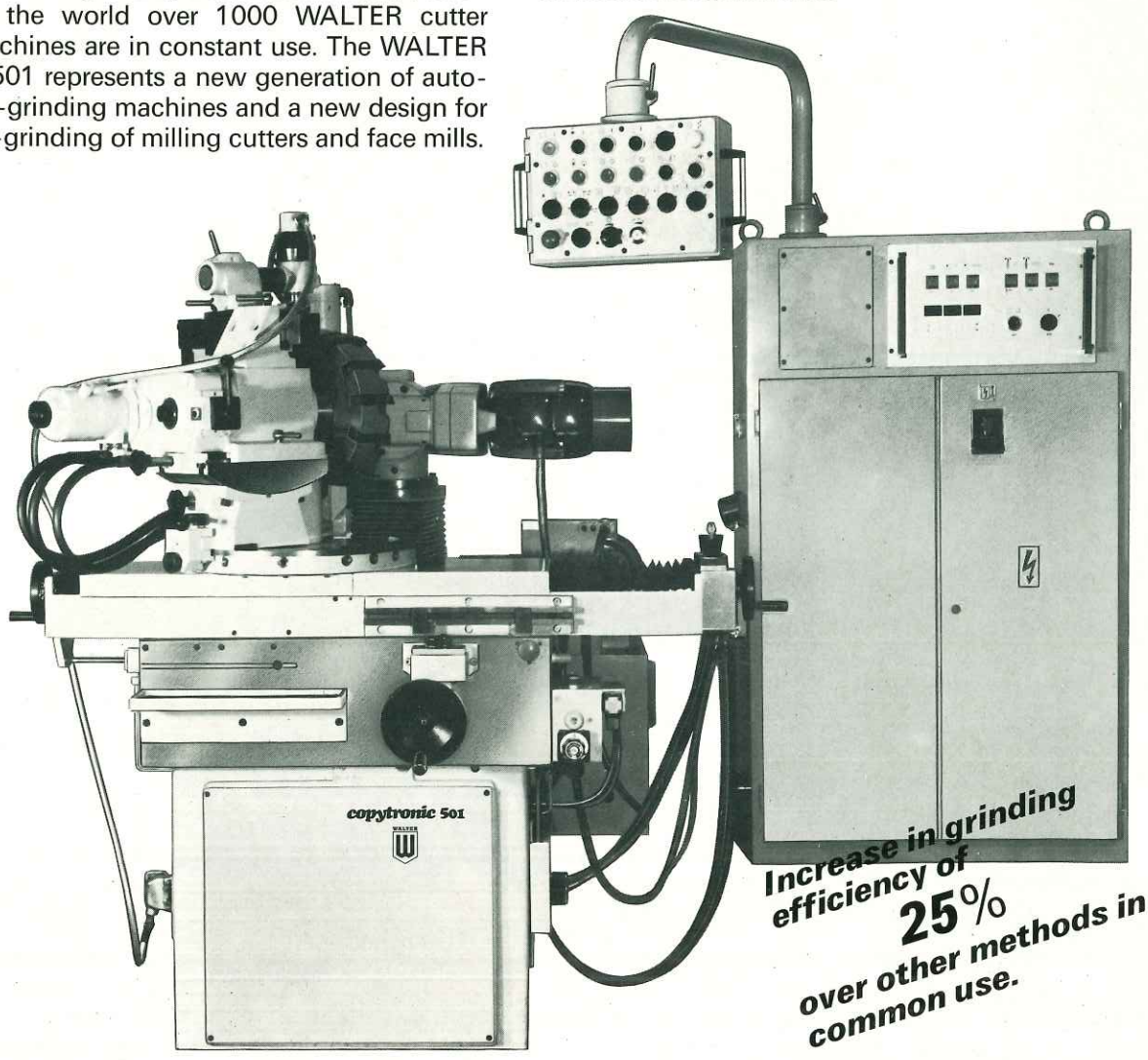
copytronic 501

automatic, electronic,
programme-controlled

Experience over many years coupled with the latest technical allocations make the copytronic 501 a faster grinding machine.

We recognise that tool reconditioning demands the same high standards of economy, efficiency and accuracy as does the manufacture of the tools themselves – and that these standards must be even more meticulously maintained for a tool and cutter grinding machine.
The manufacture of both products demands special knowledge and experience in cutting and grinding techniques and WALTER possesses both. We have been established in the manufacture of tungsten carbide tools and tool-grinding machines for many years – throughout the world over 1000 WALTER cutter grinding machines are in constant use. The WALTER copytronic 501 represents a new generation of automatic cutter-grinding machines and a new design for profile form-grinding of milling cutters and face mills.

All the WALTER experience over many years coupled with the latest technical allocations in precision, control and function have gone in making the copytronic 501. Due to new technical developments in drive mechanisms and analysis of all the various grinding operations needed on such a machine, the copytronic 501 ensures a considerable improvement in form copying accuracy as well as an improved quality of the grind. These advances result in an increase in grinding efficiency of up to an average of 25 % over other methods in common use.



Increase in grinding efficiency of 25% over other methods in common use.

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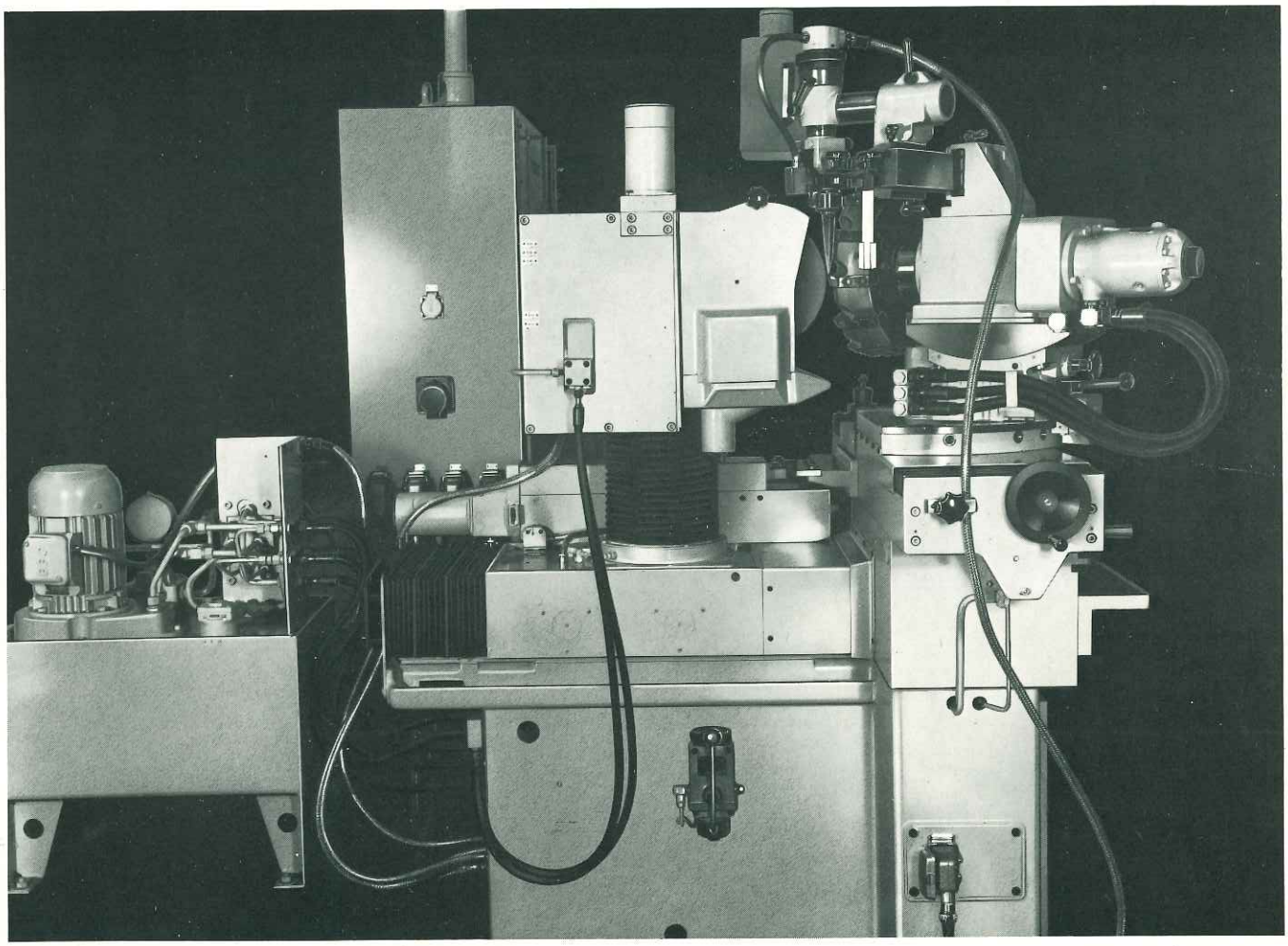


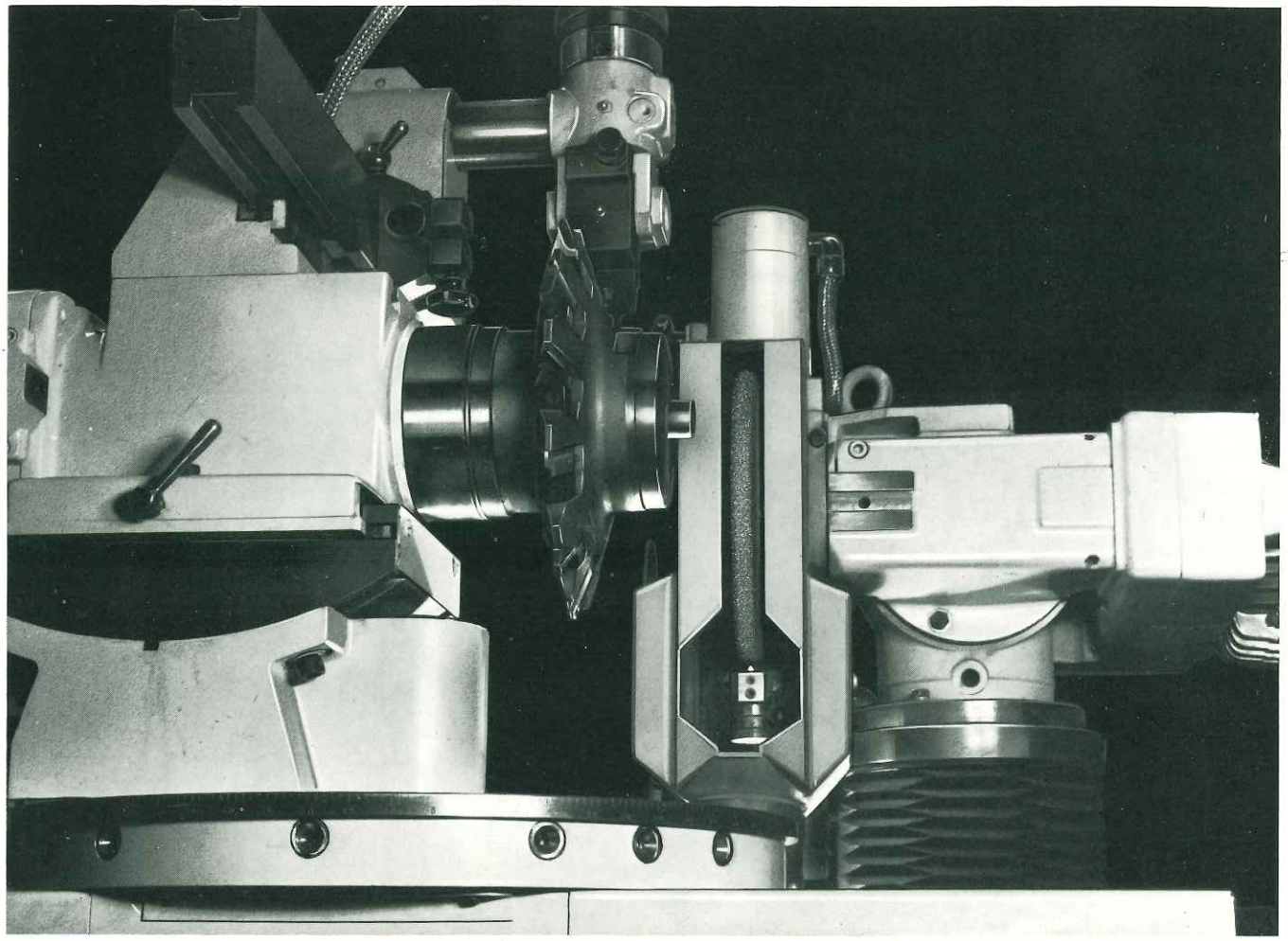
Two different grinding methods allow the ultimate in versatility.

The copytronic 501 profile form-grinding machine permits the grinding of milling cutters and face mills with different cutting geometries and various cutting edge profiles by two different grinding methods.

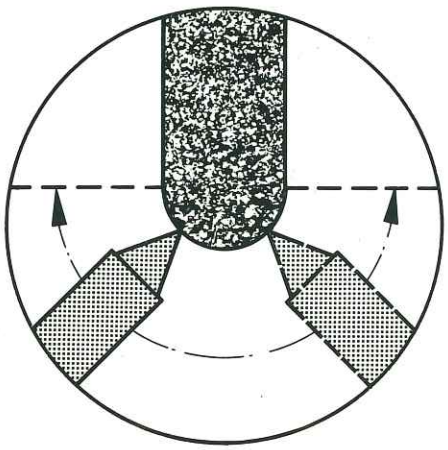
The copy grinding method with template is especially suitable for grinding main and secondary cutting edges, i.e. complete set of cutting edges in one operation, as well as for grinding profile and form milling cutters in one operation.

Second possibility: **precision facet grinding method** without template suitable for the grinding of tools using cupped or, alternatively, peripheral wheels as well as for the grinding of extremely fine pitch milling cutters which cannot normally be ground by means of peripheral grinding wheels.

These options mean that the most favourable grinding method can be chosen for each case, allowing full advantage to be taken of the machine versatility. These advantages are provided by the absolute precision obtained in reproducing an established grind, the reduced set-up and adjustment times, its faster grind to a very high quality and its unrivalled grinding efficiency. The WALTER copytronic 501 is the automatic, electronic and programme-controlled machine which gives you faster re-grinding with two different grinding methods and unsurpassed versatility.



Dressing unit and feed mechanism are electronically controlled.



The dressing of the grinding wheel takes place during indexing and not during the stroke of the machine as with other well-known machines: **Thus, the grinding stroke of the machine is shorter and faster.** The feed for the dressing diamond and the stock removal on the cutting edge can be freely programmed for roughing and/or finishing by means of electronically controlled creep motors. The illuminated dioden read-out permits close control. This means considerably reduced cycle times.

The profile of the grinding wheel is dressed to a semicircle. This ensures that the grinding wheel engagement is always constant thus permitting a precise reproduction of the cutting edge profile dimensions.

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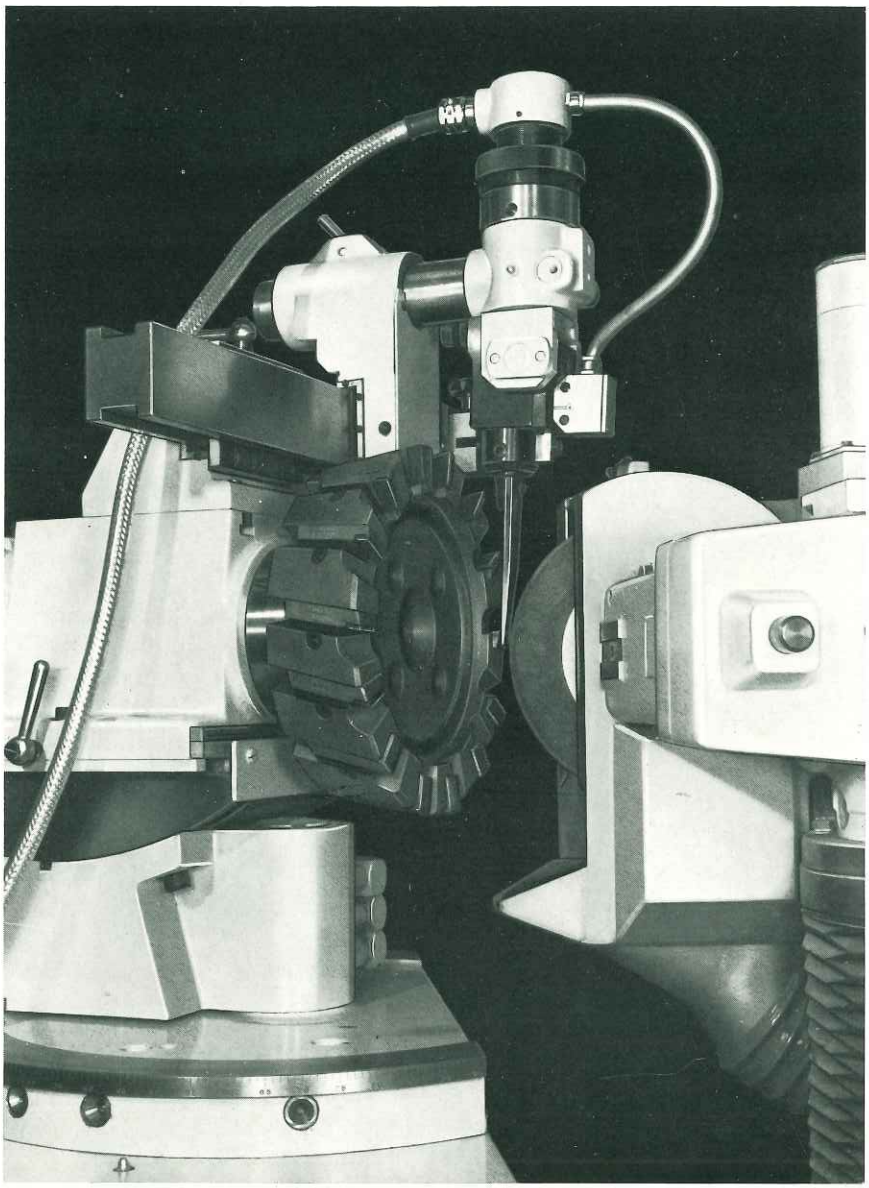
The automatic indexing device.



Our well proven, high-precision spindle bearing arrangement and precise automatic indexing unit provide absolutely constant and uniform axial accuracy and concentricity. The auto-indexing unit is easily programmed. The number of teeth of the tool, the number of revolutions for roughing and/or finishing, the in-feed per revolution for roughing and/or finishing and the in-feed for dressing are all quickly set by buttons. The indexing unit is mounted onto a rigid holder and can be speedily adjusted. Thus, changeover from right hand to left hand tools is easily effected.

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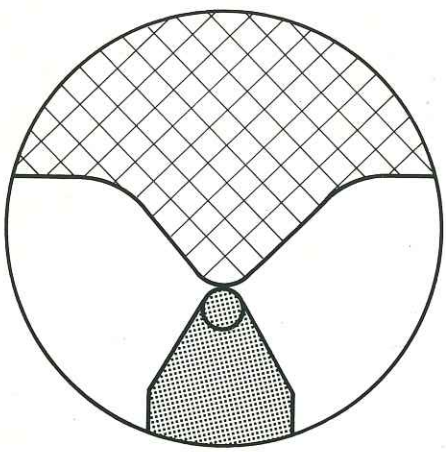
Reduced times for setting-up and adjustment.

The T-pattern design of the machine base and the convenient swivelling control panel provide excellent accessibility to all controls and permit the machine to be operated from all sides.

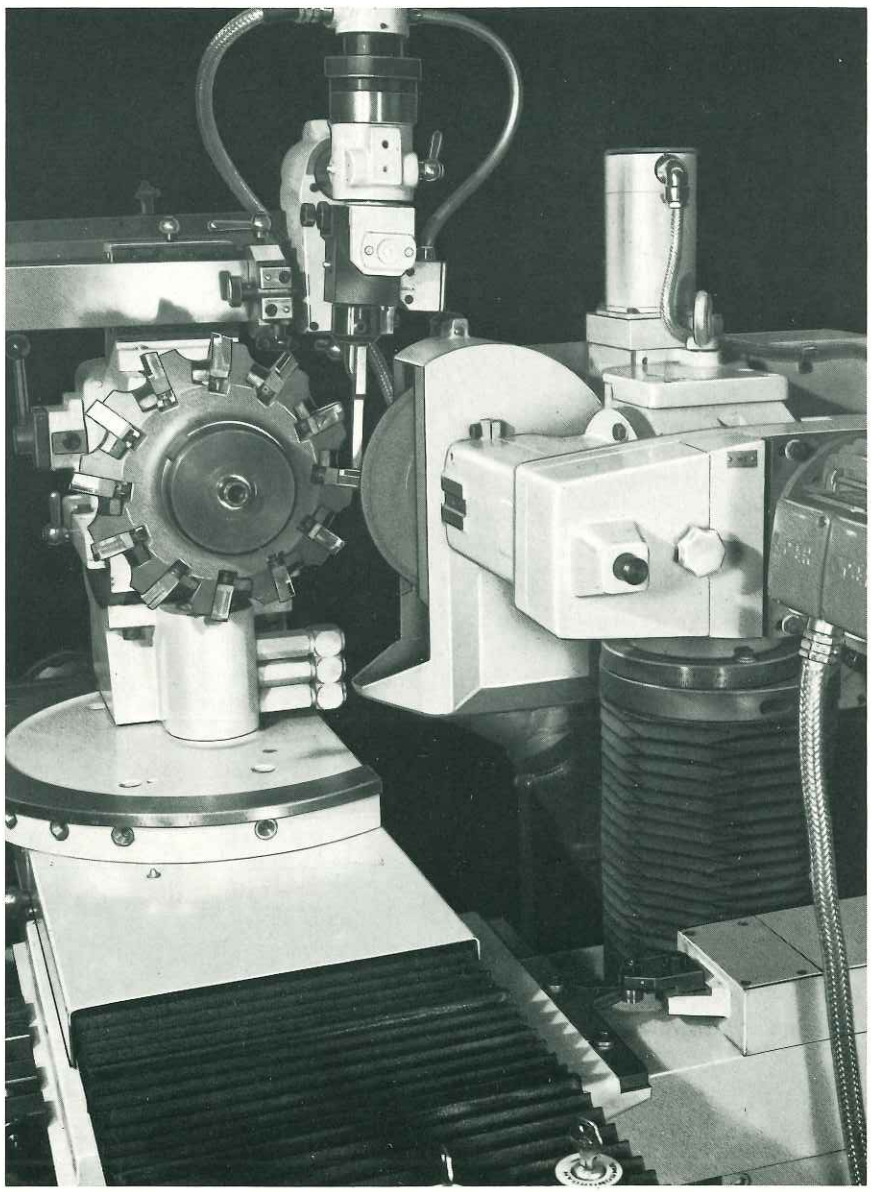
The top slide can be adjusted in two directions. The setting-up, adjustment and resetting of the machine are considerably simplified by this new design, permitting big reductions in machine down-time.

The in-feed of the grinding wheel is electronically controlled by creep motors. Thus, the grinding wheel can approach and/or be backed out of the work material in a rapid movement. The final position can be chosen by means of a push-button, pre-set to 0.1 and/or 0.01 mm.

The milling of the templates on the copytronic 501 has been considerably simplified by the use of electronics and since not additional profile for the dressing part of the stroke is now necessary.



Grinding of a face milling cutter by means of the copy grinding device.



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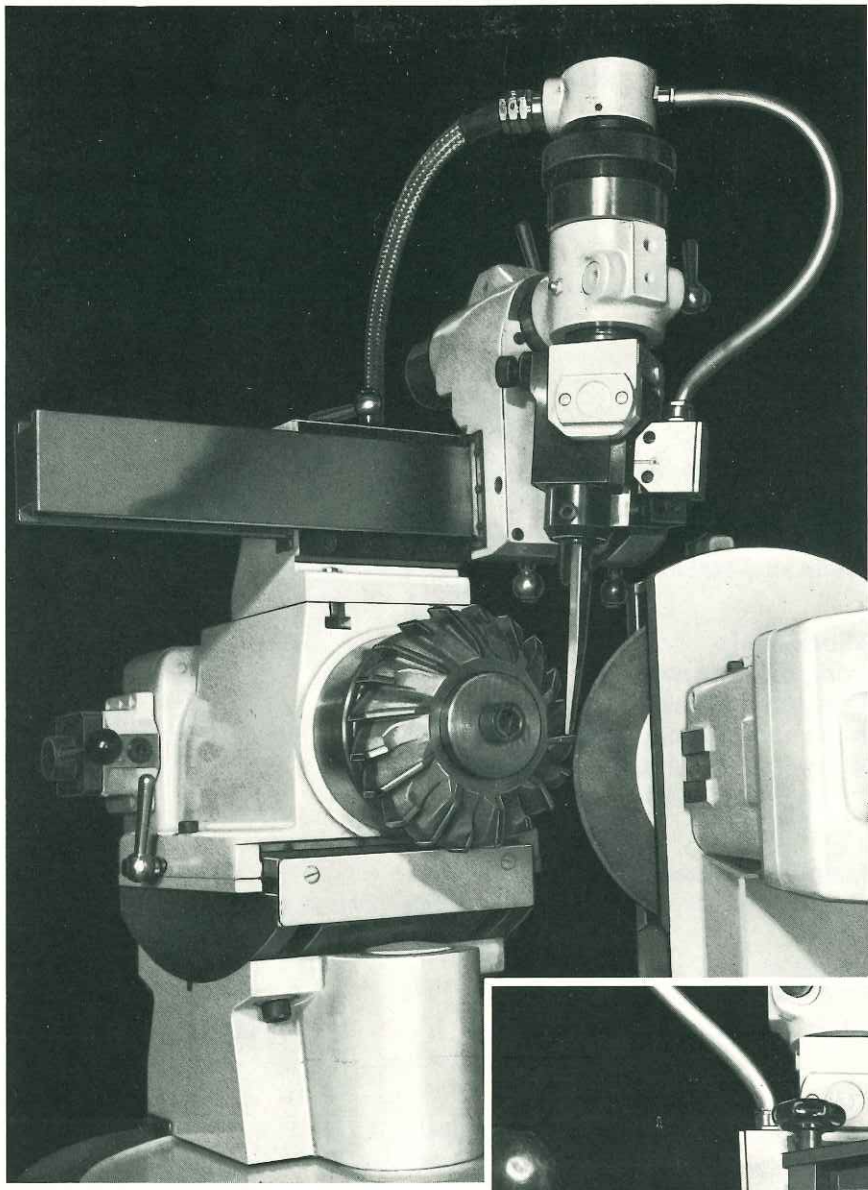
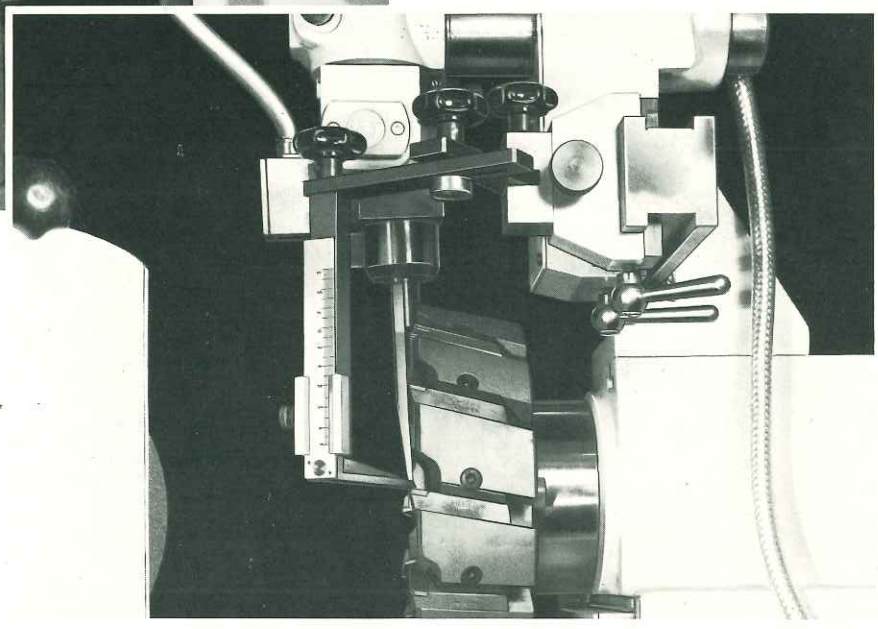


Milling cutter grinding attachment.

The milling cutter grinding attachment can be swivelled about the vertical axis by ± 95° so that fast resetting from milling cutter to single form gear hobs and/or form cutters is permitted. Preferred angular settings can be set by means of indexing pins; other intermediate values are adjustable. The tool axis can also be adjusted for extreme cutting edge geometries by means of a swivelling arrangement.



Setting gauge for the adjustment of the cutting edge.

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Technical Data

Workhead	
Workpiece diameter	80–500 mm
Workspindle	ISO 50 Taper
Spindle register	128.57 mm
R.P.M. infinitely variable to maximum of	100
Rotation through vertical axis	190°
Rotation through horizontal axis	± 10°
Horizontal and axial movement	65 mm
Work table	
Longitudinal travel	400 mm
Longitudinal travel of the grinding head	300 mm
Maximum grinding length with template	250 mm
Maximum grinding depth with template	60 mm
Profile angle up to	75°
Grinding spindle	
R.P.M. infinitely variable (with constant torque)	500–2900
Motor	1.5 kW
Diameter	70 mm
Rotation through vertical axis	360°
Rotation through horizontal axis	220°
Grinding wheels	
Peripheral grinding wheel diameter maximum	250 mm
Peripheral grinding wheel diameter minimum	160 mm
Bore	76.2 mm
Cupped wheel diameter maximum	150 mm
Bore	20 mm
Operating voltage – normal	220/380 V/50 C.P.S.
Hydraulic motor	1.5 kW
Total power consumption	about 5 kW
Net weight of the machine	1600 kg

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Dust extraction
The machine is provided with a nozzle for dust extraktion (diameter of tube end: 80 mm). Exhaust capacity required: about 9 m³/min.
A dust extraction unit is available as a special attachment.

WALTER

Transmares Corporation

precision machinery since 1935

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